

**REMARKS**

Claims 1-14 are all the claims pending in the application. The claims and the specification are amended herein to correct informalities, such as spelling errors, grammatical errors and translation errors.

Applicants specifically point to a translation error on page 6, line 4 wherein the words "concave" and "convex" are transposed. The word "concave" is replaced by "convex" and the word "convex" is replaced by "concave". As described in the last paragraph on page 5 bridging page 6, the user of sun glasses employing the synthetic resin laminate of the present invention sees objects from the (E) side of the sun glass lens (on the inside of the lens) through the (A) side of the lens (on the outside of the lens). It is generally known that for sun glasses, the (A) side (on the outside) has a convex shape and the (E) side (on the inside) has a concave shape. Thus, one of ordinary skill in the art would readily recognize the obvious error in the specification.

Hence no issues of new matter are presented.

**I. Drawings**

Applicants note that 1 sheet of drawings was filed with the application on June 11, 2001. The Examiner has not indicated whether the drawing is acceptable. Applicants respectfully request an indication of whether the drawing is approved.

**II. PTO 1449 Form**

An Information Disclosure Statement was filed on June 11, 2001, with the application. The Examiner has not returned an initialed copy of the PTO 1449 Form. Applicants respectfully request that the Examiner return an initialed copy of the PTO 1449 Form submitted on June 11,

2001. A copy of the PTO 1449 Form filed on June 11, 2001, is submitted herewith for the Examiner's convenience.

### **III. Response to Claim Objections**

Claims 1, 3, 5 and 6 are objected to due to the misspelling of the word "photochromism"

Claims 1, 3, 5 and 6 are amended herein to correct this informality, thereby obviating the rejection. Accordingly, Applicants respectfully request withdrawal of the objection.

Claims 7, 9 and 14 are objected to under 37 C.F.R. § 1.75(c) as allegedly being in improper form as an improper multiple dependent claim.

Claims 7 and 14 are amended herein to correct this informality, thereby obviating the objection. Accordingly, Applicants respectfully request withdrawal of the objection.

### **IV. Response to Claim Rejections Under 35 U.S.C. § 112, Second Paragraph**

Claims 1-14 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite.

Regarding claim 1, the Examiner alleges that the multilayer structure can be interpreted to mean either a three-layer structure (two transparent resin layers which are themselves photochromic and polarized, and an adhesive), or a five-layer structure. The Examiner also alleges that the order of these layers is not clear.

Regarding claims 1, 2 and 5, the Examiner alleges that the recitation "said one transparent synthetic resin" lacks sufficient antecedent basis.

Regarding claim 4, the Examiner alleges that the term "a polycarbonate resin" is a relative term and not defined, which renders the claim indefinite. The Examiner suggests to use "polycarbonate."

Regarding claim 13, the Examiner states that he does not understand how the two-color pigment is related to the polarization resin layer and would not know how to examine this claim as written.

The Examiner further alleges that, in claim 13, the term "improved heat resistance" is a relative term which is not defined and renders the claim indefinite.

Claim 1 is amended to clarify the number of layers and the order of the layers and to provide proper antecedent basis for the recitations in claims 2 and 5.

With respect to claim 4, Applicants respectfully traverse the rejection. Applicants submit that the term "a polycarbonate resin" is not a relative term and is not indefinite. The test for indefiniteness is whether the claims set out the claimed subject matter with a reasonable degree of clarity and particularity in light of (1) the content of the specification; (2) the teachings of the prior art; and (3) the claim interpretation that would be given by one of ordinary skill in the art. Applicants submit that the term "polycarbonate resin" is well defined in the art and does not render the claim indefinite. The fact that the term "a polycarbonate resin" may include a large number of different types of polycarbonate resins does not render the term relative. Thus, in view of the knowledge and skill within the art, one of ordinary skill in the art would reasonably be apprised as to the meaning of the term "polycarbonate resin". However, in an effort to

facilitate and expedite prosecution of the application, claim 4 is amended to recite "wherein said two transparent synthetic resin layers comprise polycarbonate."

Claim 13 is amended to clarify the relationship between the two color pigment and the polarization resin layer, and the phrase "improved heat resistance" is deleted, thereby obviating the rejections.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**V. Response to Objections to the Specification**

The specification is amended herein to correct spelling and grammatical errors and clarify unclear statements, thereby obviating the rejection. Accordingly, Applicants respectfully request withdrawal of the objection.


**VI. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111  
U.S. Application Ser. No. 09/876,946

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

**The specification is changed as follows:**

**On page 1, delete paragraph 1 and insert the following:**

The present invention relates to a synthetic resin laminate having both polarization ~~characteristic~~characteristics and photochromism ~~characteristic~~characteristics, and specifically to a synthetic resin laminate having good appearance and excellent optical characteristics, which is used for glare-reducing materials, such as ~~goggle~~goggles and sun ~~glass~~glasses for sport use, and can be readily produced and processed.

**On Page 1, delete paragraph 2 and insert the following:**

Goggles and sun glasses for sport use which have polarization ~~characteristic~~characteristics exhibit excellent cutting ~~characteristic~~characteristics against a reflected light. Thus, their usefulness in outdoor activities such as marine ~~sports~~sports, skiing and fishing has come to be noticed widely. Recently, their demand has suddenly expanded. Particularly, when a polycarbonate resin is used ~~for their~~as the material for goggles and sun glasses, the ~~tendency demand~~ is remarkable since ~~it the resin~~the resin exhibits excellent impact resistance.

**On page 1 delete the paragraph bridging pages 1-2 and insert the following:**

On the other hand, with the rapid development of excellent photochromic ~~pigment~~pigments, the

characteristic of photochromic sun glasses to change transmittance depending upon surrounding brightness ~~also has remarkably been improved, so that they also have been rapidly enhancing popularity~~ has also been remarkably improved. Therefore, photochromic sun glasses are becoming more popular.

**On Page 2, delete paragraph 2 and insert the following:**

Ideas concerning a synthetic resin glare-reducing material having both ~~a~~ the function ~~to of~~ change changing transmittance depending on surrounding brightness and ~~a~~ the function ~~to block of~~ preferentially blocking a-reflected light have been suggested. However, ~~in the present situation,~~ they have not been put into practice yet, because ~~even if a concrete constitution of a glare-reducing material with required properties was suggested, a concrete~~ the process for production thereof producing synthetic resin glare-reducing materials was ~~practically poor~~ or properties of a product thus obtained were insufficient in the present production process.


**On page 3, delete the paragraph bridging pages 3 and 4 and insert the following:**

As a result of extensive trials and studies for various methods, the inventors have found that a laminate interposed between a resin layer having photochromism ~~characteristic~~ characteristics and a resin layer having polarization ~~characteristic~~ characteristics between two transparent synthetic resins exhibits not only excellent ~~both photochromism characteristic~~ characteristics and polarization ~~characteristic~~ characteristics, but also processing into curved surfaces and injection molding can be readily performed, ~~and the~~ The laminate can also be produced in a very simple

process, and have accomplished the present invention.

**On page 4, delete the first paragraph and insert the following:**

That is, the present invention provides a synthetic resin laminate having both ~~photochromism~~ photochromism characteristic characteristics and polarization ~~characteristic~~ characteristics consisting essentially of (1) two transparent synthetic resin layers, (2) a resin layer having ~~photochromism characteristic~~ photochromism characteristics and a resin layer having polarization ~~characteristic~~ characteristics interposed between ~~said the~~ two transparent synthetic resin layers and (3) an adhesive layer to adhere ~~said the~~ resin layer having polarization ~~characteristic to said~~ characteristics and one of the two transparent synthetic resin ~~layer~~ layers, wherein ~~said the other one of the two~~ transparent synthetic resin ~~layer to contact said layers~~ contacts the resin layer having ~~photochromism characteristic~~ photochromism characteristics and has a thickness of 50  $\mu\text{m}$  or above and a retardation value of 150 nm or below, or 3000 nm or above.



**On page 4, delete the second paragraph and insert the following:**

It is preferable that said one transparent synthetic resin ~~to contact said~~ contacts the adhesive layer ~~has having~~ a thickness of 100  $\mu\text{m}$  or above.



**On page 4, delete the third paragraph and insert the following:**

It is preferable that said transparent synthetic resin is a polycarbonate resin. Also resins excellent in impact resistance, transparency and strength, other than a polycarbonate resin can be used.

**On page 4, delete the fourth paragraph and insert the following:**

Further, it is preferable that said resin layer having photochromism ~~characteristic~~  
characteristics is ~~an~~ a urethane resin layer containing a photochromic pigment(s).

**On page 5, delete the first paragraph and insert the following**

It is preferable that said resin layer having polarization ~~characteristic~~ characteristics is a polarizing film.

**On page 5, delete the fourth paragraph and insert the following:**

In FIG. 1, (A) shows a transparent synthetic resin layer (hereinafter, "(A)"); (B) shows a resin layer having photochromism ~~characteristic~~ characteristics (hereinafter, "(B)"); (C) shows a resin layer having polarization ~~characteristic~~ characteristics (hereinafter, "(C)"); (D) shows an adhesive layer (hereinafter, "(D)") and (E) shows a transparent synthetic resin layer (hereinafter, "(E)").

**On page 5, delete the paragraph bridging page 6 and insert the following:**

When the synthetic resin laminate of the present invention is used as a glare-reducing material such as ~~a sun glass glasses~~ and ~~a sporting goggle goggles~~, the side of (A) (hereinafter, "(A) side") is used as the outside and the side of (E) (hereinafter, "(E) side") is used as the inside. For example, a user of ~~a sun glass applied glasses employing~~ the synthetic resin laminate of the present invention sees objects from the (E) side of the sun glass lens of the inside through the (A) side of the outside.

**On page 6, delete the first paragraph and insert the following:**

When the synthetic resin laminate is processed into curved surfaces, it is processed so as to form a ~~concave~~-convex shape in the (A) side and a ~~convex~~-concave shape in the (E) side. Further, when other ~~resin is~~ resins are adhered to the synthetic resin laminate by injection molding, etc., notwithstanding a flat sheet or an article processed into curved surfaces, the other resin with low UV absorption and transparency may be adhered to the (A) side or the (E) side of the laminate. ~~According~~ With respect to the ~~said~~ other resin added to UV absorption or pigment, it is ~~preferable~~ preferable that the ~~said~~ other resin is adhered to the (A) side.

**On page 6, delete the second paragraph and insert the following:**

When the components, concentration and thickness of (A), (B), (C), (D) and (E) are combined as described ~~later~~ herein, the synthetic resin laminate exhibits excellent optical

characteristics and it becomes possible to form it ~~perform its processing~~ into curved surfaces and by injection molding can possibly be made into curved surfaces and be injection molded.

**On page 6, delete the paragraph bridging page 7 and insert the following:**

It is preferable that (A) has a thickness of 50  $\mu\text{m}$  or above and a retardation value (hereinafter, "Re") of 150 nm or below, or 3000 nm or above and substantially, (A) is a sheet to transmit a light ~~with~~ having a wave length of 350 nm or above.

**On page 7, delete the third paragraph and insert the following:**

When the synthetic resin laminate is used as a glare-reducing material outside the above-mentioned range of Re, it is not preferable since a colored interference figure is generated.

**On page 7, delete the fourth paragraph and insert the following:**

When a polycarbonate resin is used as (A), it is required that it has a thickness of 50 to 200  $\mu\text{m}$  and Re of 150 nm or below or a thickness of 300  $\mu\text{m}$  to 1 mm and Re of 3000 nm or above. Outside the above-mentioned range, the following ~~some~~ problems occur.

**On page 7, delete the fifth paragraph and insert the following:**

(1) When the synthetic resin laminate is processed into curved surfaces, an interference figure is observed.

**On page 8, delete the second paragraph and insert the following:**

(4) Polarization ~~characteristic is~~ characteristics are deteriorated in an injection molding.

**On page 8, delete the fourth paragraph and insert the following:**

That is, the sheet having Re of 150 nm or below can be produced by a casting process or a non-stretching extrusion process. The sheet having Re of 3000 nm or above can be produced by changing a polycarbonate resin to a sheet by an extrusion process and then stretching substantially the sheet in one direction while heating to a ~~somewhat higher~~ temperature (e.g., about 140 to about 180°C) somewhat higher than the glass transition temperature. In such a case, stretching magnification exerts an influence on Re.

**On page 15, delete the first paragraph and insert the following:**

Particularly, as described in Japanese Patent Kokai (Laid-open) No.63-311203, a film with high heat resistance produced by a process of production comprising performing particular treatment for a film with a metal ion(s) and boric acid to stabilize the film is preferable. Further, it is very preferable to use a polarizing film with UV cutting ~~characteristic~~ characteristics.

**On page 15, delete the paragraph bridging page 16 and insert the following:**

(D) may be any adhesive on the condition that conventional polycarbonate resin can be adhered to a polarizing film. A polyurethane resin to be used in the resin layer having photochromism ~~characteristic~~ characteristics of above-mentioned (B) is usually applied as the

adhesive. Particularly, it is preferable to apply a two-liquid type polyurethane containing a polyurethane prepolymer and a curing agent, considering post processing. The range of thickness of (D) is preferably 5 to 100  $\mu\text{m}$  and more preferably 5 to 50  $\mu\text{m}$ . When the thickness is below 5  $\mu\text{m}$ , it is difficult to obtain sufficient adhesive force. When the thickness is above 100  $\mu\text{m}$ , the adhesive force is sufficient, but ~~the~~ a long time is required to evaporate a solvent in the adhesive, so that productivity and economy becomes bad. It is possible to provide UV cutting potency for the laminate by adding a UV absorber to (D).

**On page 17, delete the second paragraph and insert the following:**

Each ~~properties~~ property was measured by the following methods.

**On page 21, delete the fourth paragraph and insert the following:**

Then, ~~an~~ a urethane adhesive was coated with a bar coater #24 on the side of the polarizing film in the laminate so as to form a thickness of 10  $\mu\text{m}$  after evaporation of the solvent and a solvent was vaporized and then a polycarbonate sheet of thickness 300  $\mu\text{m}$  was adhered thereto.

**On page 26, delete the second paragraph and insert the following:**

~~A sun~~ Sunlight was irradiated on the side of the polycarbonate film of thickness 120  $\mu\text{m}$  and Re 60 nm in the laminate. The laminate was changed to a somewhat brownish color, but so

remarkable color development as in Example 1 was not observed. The transmittance under irradiation of an ultraviolet light from the same direction as that of a sun light was about 36%.

**On page 26, delete the paragraph bridging page 27 and insert the following:**

The laminate was produced in the same manner as in Example 1 except that the resin solution was prepared without adding the photochromic pigment ① and the photochromic pigment ②. The thickness of the laminate thus obtained was 618  $\mu\text{m}$ . When the laminate was exposed to a sun light, no color development was observed and both transmittance and polarization degree in non-irradiation of an ultraviolet light were the same as those in the case of non-irradiation of a light in Example 1. Glare reduction was not attained so much as in the laminate produced in Example 1 to develop color under irradiation of an ultraviolet light.

**On page 27, delete the first paragraph and insert the following:**

The photochromic pigment-containing resin solution was prepared in the same manner as in Example 1. The resin solution was coated on a polycarbonate sheet of thickness 300  $\mu\text{m}$ , with a doctor blade ~~of~~ having a thickness of 300  $\mu\text{m}$ , manufactured by Yoshimitsu Seiki k.k., in Japan and then standing for 10 minutes in the atmosphere of 45°C. Then, the surface coated with the resin solution was adhered to a polycarbonate film of thickness 120  $\mu\text{m}$  and Re 60 nm. The thickness of the laminate thus obtained was 578  $\mu\text{m}$  and the thickness of the photochromic resin layer was 158  $\mu\text{m}$  by measurement with a micrometer. Then, the laminate was heat cured for 2 days at 70° C. Total thickness of the laminate thus obtained was 575  $\mu\text{m}$ .

**On page 28, delete the second paragraph and insert the following:**

The synthetic resin laminate of the present invention, having both polarization ~~characteristic~~ characteristics and photochromism ~~characteristic~~ characteristics is suitably applicable to the use of glare-reducing materials such as sporting ~~goggle~~ goggles and sun ~~glass~~ glasses and a synthetic resin sun glass with magnification can be readily produced by the combination ~~with an~~ by injection molding.

**IN THE CLAIMS:**

**The claims are amended as follows:**

1. (amended) A synthetic resin laminate having both ~~photochromism~~ photochromism ~~characteristic~~ characteristics and polarization ~~characteristic~~ characteristics consisting essentially of (1) two transparent synthetic resin layers, (2) a resin layer having ~~photochromism~~ photochromism ~~characteristic~~ characteristics and a resin layer having polarization ~~characteristic~~ characteristics interposed between said two transparent synthetic resin layers, and (3) an adhesive layer to adhere said resin layer having polarization ~~characteristic~~ characteristics to said one of said two transparent synthetic resin layers, wherein said ~~the other one of said two~~ transparent synthetic resin layers ~~to contacts~~ said resin layer having ~~photochromism~~ photochromism ~~characteristic~~ characteristics and has a thickness of 50  $\mu\text{m}$  or above and a retardation value of 150 nm or below, or 3000 nm or above.

3. (amended) The synthetic resin laminate according to claim 1, wherein said resin layer having ~~photochromism~~ photochromism ~~characteristic-characteristics~~ has a thickness of 50  $\mu\text{m}$  to 250  $\mu\text{m}$ .

5. (amended) The synthetic resin laminate according to claim 1, wherein said resin layer having ~~photochromism~~ photochromism ~~characteristic-characteristics~~ is a layer formed by laminating a mixture of a ~~photochromic~~ photochromic pigment(s) and a polyurethane obtained from diisocyanate and polyol on ~~said one~~ transparent synthetic resin layer and/or said resin layer having polarization ~~characteristic-characteristics~~ and then curing.

6. (amended) The synthetic resin laminate according to claim 1 or claim 4, wherein said resin layer having ~~photochromism~~ photochromism ~~characteristic-characteristics~~ comprises a ~~photochromic~~ photochromic pigment-containing two-liquid polyurethane formed by reaction of a polyurethane prepolymer and a curing agent.

7. (amended) The synthetic resin laminate according to claim 5 ~~or claim 6~~, wherein said polyurethane prepolymer is a compound with an isocyanate group on both ends obtained from diisocyanate and polyol.

13. (amended) The synthetic resin laminate according to claim 1, wherein said resin layer having polarization ~~characteristic-characteristics~~ comprises a polarizing film ~~with improved heat resistance used~~ containing a two-color pigment-dye(s) and being treated with a metal ion(s) and boric acid.



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14. (amended) A molded article formed into a shape of curved surface by vacuum molding the synthetic resin laminate described in claim 5 ~~or claim 6~~.

**Claims 15-17 are added as new claims.**